

THAT WHICH IS CLAIMED:

1) A urethane-modified isocyanate composition having an isocyanate content of less than about 15 weight percent and which comprises the reaction product of:

- 5 a) a stoichiometric excess of an aliphatic or aromatic polyisocyanate, or mixtures thereof; with
- b) a polyol composition that comprises (i) 0.5 to 50 percent by weight or more of at least one nitrogen-containing polyether polyol having a molecular weight of from 1000 to 12000 obtained by alkoxylation of at least one initiator molecule of the formula

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wherein n and p are independently integers from 2 to 6,

A at each occurrence is independently oxygen, nitrogen, sulfur or hydrogen, with the proviso that only one of A can be hydrogen at one time,

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R is a C₁ to C₃ alkyl group,

m is equal to 0 when A is hydrogen, is 1 when A is oxygen or sulfur, and is 2 when A is nitrogen, or



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where m is an integer from 2 to 12 and

R is a C₁ to C₃ alkyl group,

and (ii) the remainder of the polyol composition is an additional polyol having a nominal hydroxyl functionality of 1.6 to 8 and a molecular weight of 1000 to 12,000, and the polyol composition contains an oxyethylene content of greater than 25 percent by weight.

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2) The isocyanate composition of Claim 1 having an isocyanate content of from 2 to 12 weight percent.

3) The isocyanate composition of Claim 1 wherein the polyisocyanate is an aromatic polyisocyanate.

4) The isocyanate composition of Claim 3 wherein the aromatic polyisocyanate comprises a toluene diisocyanate or a methylene diphenylisocyanate.

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5) The isocyanate composition of Claim 4 wherein the aromatic polyisocyanate comprises 2,4'- and 4,4'- methylene diphenylisocyanate in a molar ratio of from 25:75 to 80:20.

5 6) The isocyanate composition of Claim 5 wherein the polyol b(i) is derived from an initiator of Formula I.

7) The isocyanate composition of Claim 6 wherein A at each occurrence in Formula I is nitrogen.

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8) The isocyanate composition of Claim 7 wherein the compound represented by Formula I is 3,3'-diamino-N-methyldipropylamine, 3,3'-diamino-N-ethyldipropylamine, 2,2'-diamino-N-methyldiethylamine.

15 9) The isocyanate composition of Claim 6 wherein A at each occurrence in Formula I is oxygen.

10) The isocyanate composition of Claim 9 wherein one A in formula I is oxygen and the other A is nitrogen.

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11) The isocyanate composition of Claim 10 wherein the compound represented by Formula I is N-(2-hydroxyethyl)-N-methyl-1,3-propanediamine, or N-(2-hydroxyethyl)-N-methyl-1,2-ethanediamine.

25 12 The isocyanate composition of Claim 1 wherein the compound represented by Formula I is 3,3'-diamino-N-methyldipropylamine or N-methyldipropanolamine.

13) The isocyanate composition of Claim 1 wherein the polyol b(i) is derived from an initiator of Formula II.

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14) The isocyanate composition of Claim 13 wherein the nitrogen-containing polyether polyol constitutes from 1 to 25 weight percent of the polyol composition.

15) An urethane-modified isocyanate composition having an isocyanate content of from 2 to 12 weight percent and which comprises the reaction product of:

a) a stoichiometric excess of an aromatic polyisocyanate comprising 2,4'- and 4,4'-methylene diphenylisocyanate in a molar ratio of from 25:75 to 80:20; with

5 b) a polyol composition which comprises: (i) from 1 to 50 weight percent, based on weight of the total polyol composition, of a polyether polyol having a molecular weight of from 1000 to 12000 obtained by alkoxylation of 3,3'-diamino-N-methyldipropylamine or N-methyldipropanolamine; and (ii) from 99 to 50 weight percent of one or more polyether polyols that has an average nominal hydroxyl
10 functionality of from 1.6 to 8; a molecular weight of from 1000 to 12000; and the polyol composition has at least 30 percent by weight of oxyethylene groups.

16) An urethane-modified isocyanate composition having an isocyanate content of from 2 to 12 weight percent and which comprises the reaction product of:

15 (a) a stoichiometric excess of an aromatic polyisocyanate comprising toluene diisocyanate; and

(b) a polyol composition which comprises: (i) from 1 to 50 weight percent, based on weight of the total polyol composition, of a polyether polyol having a molecular weight of from 1000 to 12000 and obtained by alkoxylation of 3,3'-diamino-N-methyldipropylamine or N-methyldipropanolamine; and (ii) from 99 to 50 weight
20 percent of one or more polyether polyols that has an average nominal hydroxyl functionality of from 1.6 to 8; a molecular weight of from 1000 to 12000; and the polyol composition has at least 30 percent by weight of oxyethylene groups.

25 17) A hydrophilic polyurethane polymer prepared by bringing together water and an isocyanate composition as claimed in Claim 1.

18) A process for making a hydrophilic polyurethane foam comprising mixing together an aqueous phase with an isocyanate composition as claimed in Claim 1.

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19) A process for making a hydrophilic polyurethane gel comprising mixing together an aqueous phase with an isocyanate composition as claimed in Claim 1.

20) A horticultural growing medium comprising an urethane-modified isocyanate composition as claimed in Claim 1 and at least one filler material obtained by mixing the filler with the isocyanate composition and applying water to the resulting blend to form a growing medium.

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21) The use of the composition of Claim 1 as a sealant for the building and construction industry.